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The Preparation of Tobacco Seed.

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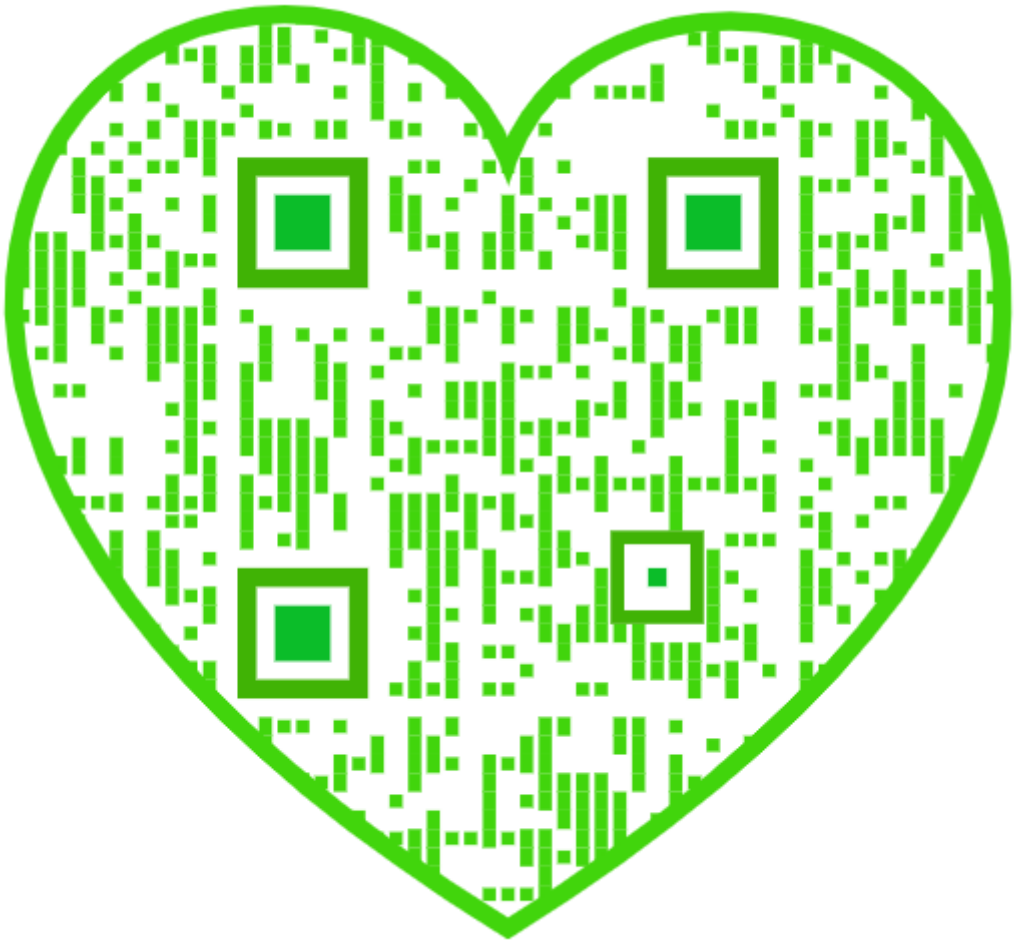
It has been proved by exact experiment, regarding many kinds of agricultural seeds, that the seed which is heaviest (not necessarily the largest or having the greatest specific gravity) produces more vigorous and productive plants than lighter seed.

This is partly because the heavy seed has the most perfect embyro or plantlet in it and the largest supply of available plant food to support the seedling until it has developed roots and leaves so as to feed itself.

One of the causes of freak tobacco plants, that is, such as top out prematurely or differ in shape and quality of leaf from the bulk of the crop, is the sowing of small and light seed. In a series of extensive experiments in the Connecticut valley, the writer separated samples of seed of the varieties grown in this region, into light, medium and heavy grades. In all cases the small and light seed produced the earliest plants in the seed bed, and these plants when set in the field developed a large per-



centage of undesirable plants which are almost a total loss to the grower.

In crops like oats or wheat, if some of the seed fails or produces poor plants, the rest of the plants stool out, and to some extent mitigate the effect of the use of the poor seed. In the tobacco crop, however, there is no compensation of this kind. The sound plants grow no better because others are inferior or unthrifty and the inferior plants, mixed with the others, damage the market value of the whole.

Dr. L. Trabut and other foreign experimenters have proved that the plants grown from light seed produce not only a very small yield, but the tobacco is of very inferior quality. The light and the small tobacco seed can be removed by the grower, now, before the seed is sowed in the seed bed, without any extra cost. The increase in yield and improvement in quality of the crop secured by this attention to the seed, is pure profit. It costs no more to cultivate and grow a uniform crop of tobacco than a crop with a large proportion of poor plants. Therefore it is extremely important that the tobacco growers separate out the light and small seed before sowing the seed beds.

Many of the light and inferior seeds are of the same size as the heavy and desirable seed and the difference generally between large and small seed is slight, so that it is not possible to separate the desirable from the undesirable seed by screening with any kind of sieves.

Some recommend water separation for lack of a better method. The seed is thrown into a vessel of water and when the heaviest seed have sunk to the bottom the light seed are skimmed off. This plan is not a success because the bubbles of air in the water prevent much of the heavy seed from sinking, and the separation is thoroughly unsatisfactory. Other methods have been recommended, but there are none so simple and practicable as the use of the current of air. A complete separation of the light and small from the heavy seed can be made by constructing a machine similar to one designed and used by the writer.

This seed separator consists of a glass tube one inch in diameter and five feet long, and a glass receptacle for holding the seed, having the diameter of the long glass tube, and so arranged with a finely woven wire screen in the bottom as to

hold the seed in the receptacle and at the same time freely admit a current of air directly into the seed. The top of this receptacle is fitted with a coupling into which the long glass tube can be set and held in place. The current of air is generated by a common foot-bellows, and regulated with a valve.

The seed to be separated is poured into the receptacle, usually about one to two ounces at a time, the glass tube set in place, and a current of air pumped into the seed. The lightest seed and the chaff are first blown out of the tube, and next the small seed. Small seeds of the same character as the larger seeds have proportionally more surface than the larger, consequently the small as well as the light seed is removed by this machine.

No doubt great improvements will be made in the machines for this purpose. Already Mr. D. P. Cooley of Granby, Conn., who is coöperating with us in the improvement of Havana seed tobacco by breeding and seed selection, has designed a machine which is simple and practical. Mr. Cooley has separated several bushels of seed in the last few weeks, and it has been found in these tests that a lot of the seed saved last fall, and thought to be sound, was partially injured by frost and should not be used for seed under any circumstances.

Heavy seed produces large, healthy, uniform and well-developed plants. The seed separated in the Connecticut valley this season shows that the seed that will be used for sowing consists of about one-half of light, undesirable seed. If this seed is separated out and only the heavy seed used for sowing, it will mean the addition of thousands of dollars to the value of the coming crop. There is no grower who can afford to grow weak, variable, freak plants from light seed, when a little time, with no other expense, will enable him to get rid of a large proportion of these undesirable plants. There are about 500,000 tobacco seeds in an ounce. The enormous quantities of seed used to sow the seed beds is sufficient evidence that a large proportion of the seed used is poor in vitality and quality. This poor seed can easily and practically be gotten rid of by using a seed separator.

A large number of growers have already separated their tobacco seed this season, and tested the vitality of the heavy seed. In every case reported so far, the growers have found

that the heavy seed has sprouted exceptionally well, and they are surprised and thoroughly satisfied with the results of the seed separation.

A thin sowing of heavy seed in the bed will no doubt yield as many or more sound plants than the usual sowing of unseparated seed.

SEPARATE THE SEED. GROW THIS YEAR'S CROP FROM THE HEAVIEST AND BEST SEED WHICH YOU HAVE.

The Agricultural Station hopes within a few days to have a separating machine either at the Station or at the farm of Mr. J. A. DuBon, of Poquonock, for the use of growers who do not find it convenient to have their seed separated elsewhere.

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